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# Muscle, Beauty AND Health



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UNITED STATES OF AMERICA.

# MUSCLE, BEAUTY, AND HEALTH.

HOW THEY MAY BE OBTAINED IN THE  
HOME AND SCHOOL.

## A BOOK OF PRACTICAL GYMNASTICS

... BY ...

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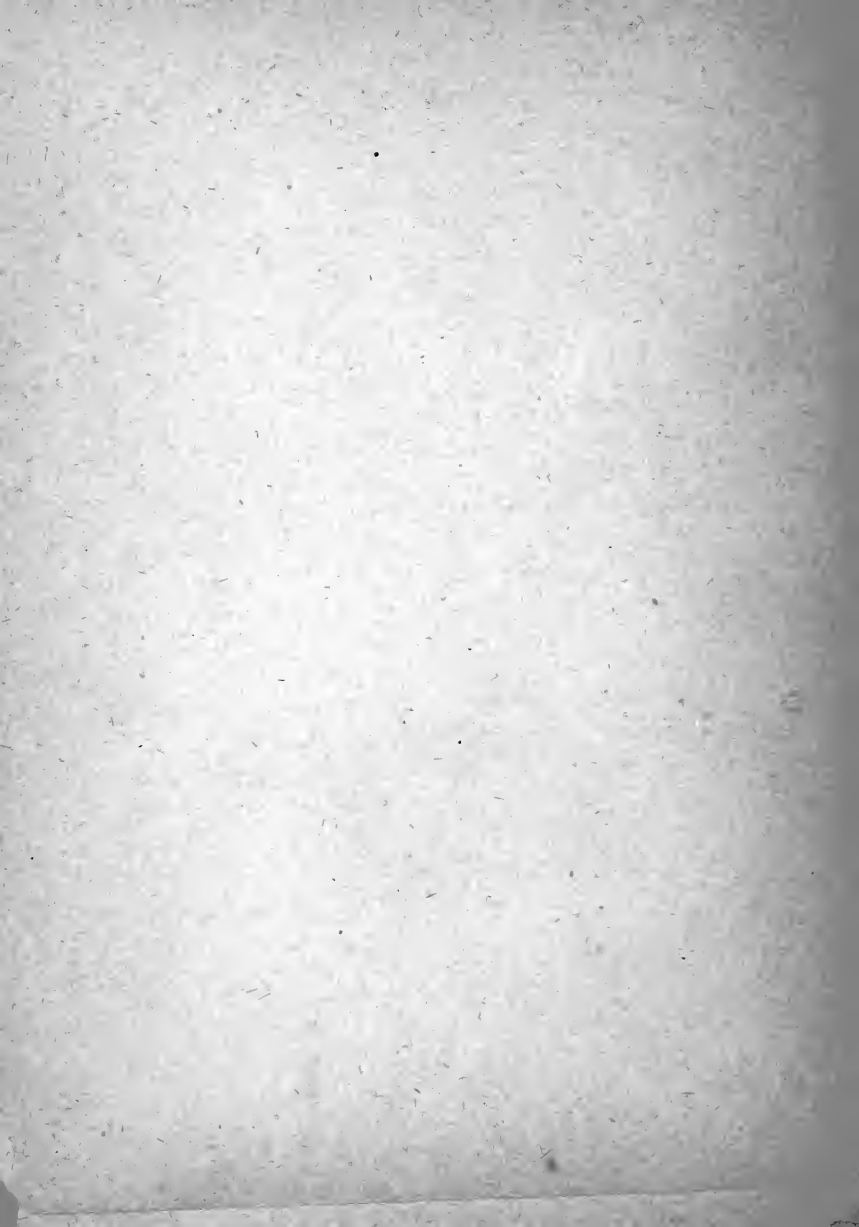
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## DEDICATION.

TO THE TEACHERS of Clinton, Linn, and Marshall Counties, Iowa, and Whiteside County, Illinois, who have so earnestly and heartily supported the author in his efforts for the Muscle, Beauty, and Health of the young, the following chapters are respectfully dedicated.



## CHAPTER I.

### INTRODUCTORY.

Did you ever have a boy say to you, "Just feel my muscle?" And have you noticed the pride with which the embryo citizen would draw up his forearm, causing the swelling of his biceps, that gives him so much satisfaction? Have you noticed how happy is the little lady who has acquired the difficult accomplishment of jumping the rope with ease and grace? And have you known and felt the satisfaction of having the little ones around you free from complaint, erect in bearing, cheerful and light-hearted, strong enough to never weary with childhood's sports and duties?

If you have noticed these things, have you not thought that perhaps the pride in the display of muscle in the one case, the delight in ease and freedom of motion in the other, might be utilized to give these boys and girls continual pleasure, and us constant satisfaction? That any teacher or parent by utilizing these tendencies of youth might feel that the physical organizations given them in trust are being steadily developed in muscle, beauty and health?

We all know that childhood is the period of physical growth. The healthy adults ordinarily simply hold their own physically, and do not materially change in general form, or in weight. Whereas, children and those little past maturity may not only completely overcome inherited physical peculiarities and make themselves better shaped and better organized than were their parents, but they may by bad habit and neglect so degenerate that the children of the strongest and most robust parents may become diseased and crochety weaklings. Indeed, the physical as well as the mental and moral manhood is made or marred entirely by the habits and surroundings of childhood.

The fact that the young may be made greatly better or worse by training is illustrated day after day upon the race track and stock farm; animals are made strong or weak, slow or fast, heavy or slender, largely by their training; and the trainer will modify his subject almost at will. We, physically, are but animals, and all that can be accomplished in the successful training of unreasoning beasts can be augmented in the education of the intelligent human animals. Nor is this a question longer open to dispute, for the testimony of years goes to show that boys and girls can be made almost perfect specimens of humanity by judicious training.

We have already too long confined the attention of home and school to mind, manners and morals.

The time has arrived when both parents and teachers must realize that the sound mind is nought without the sound body. Of what use to you or your children will be the most cultured mind, if the body is not strong enough or healthy enough to stand the strain of mental work. If, as children, we had all of us received such training as would have made us strong physically, we would now be able, by regular attention to our exercise, to do any amount of mental work our business might demand. Physical development is the foundation, mental and moral the superstructure; if, then, the foundation is defective, for what permanency can we look in the superstructure?

This idea of the necessity of attention to the physical man for the highest usefulness of the higher powers is no new idea. The ancient Greeks are said to have reached the highest point of culture ever obtained by unaided humanity. With them the cultivation of the body was as much a part of the regular education as was the study of their language. Gymnastics continued to be a regular part of every system of education down to the middle ages. And who can deny that the products of that period were an honor to the race and history. It gave us such warriors as Leonidas; such poets as Homer; statesmen like Pericles; orators like Demosthenes, and philosophers like Socrates. A common occurrence was for the same man to carry off

prizes in athletics and literature. Art, poetry, and language reached a high state. The literature of that time has come to us as of sufficient value to occupy the attention of the student of all modern nations.

In the time known to history as the dark ages, the physical came to be almost the sole subject of study of the ruling classes. Literature and kindred studies were looked upon with the greatest disfavor by all, and war and athletics were considered the only pursuits worthy of the attention of a gentleman. In recent times the pendulum has swung to the opposite extreme, and for several centuries physical culture was entirely neglected; athletics of all kinds were disregarded by the schools; mental culture was looked upon as the only thing needful, physical culture brutal. For a time, no doubt, oscillations from physical to mental training will continue, and then we will settle down to the golden mean of giving each part of our triune organization its appropriate discipline.

In the meantime, what can be done at home and in school to secure muscle, beauty, and health for our children? We must first understand that we, at school, must be content for the time to work under some disadvantages. The pendulum has not yet swung far enough in our direction for those of us who favor muscular development to have everything as we want it. But I believe the time will come

when every progressive school will be supplied with such apparatus and space necessary to use it. Until that time we will be encumbered with desks close together, no apparatus, and many times a popular sentiment against the work. But with the teacher, as with a character in one of Reade's novels, "Difficulties are things to be overcome," and all of these may be. We purpose in the succeeding chapters to give you ways of overcoming the first and second; as to the last, it always exists and must always be fairly met. Half the time the teacher must do the children good against the will of the parents; but after it is done and the benefit received, then many times the unwilling commendation comes. So in this line of getting pupils to be muscular, beautiful, and healthy, you will now often find opposition from those who should be most interested, and if such is the case, follow the Savior's admonition to "Be wise as serpents but harmless as doves," and do them all the good you can in spite of themselves. If they object to having regular daily exercises, give the pupils all the help you can on the play ground and out of school. Tell them how to walk, how to sit, give them breathing exercises, chest expanding work; teach them plays and feats that will tend to make them strong and graceful. Give special attention to the girls. Get them, if you can, to wear their clothing so that their body and limbs may be free to move untrammelled by stays, tight dress

waists, or binding sleeves. Remember that our girls are made by society physically imperfect. So, if possible, give them such physical culture work as will make them strong before society gets her fetters upon them, and forbids their further development as being unladylike.

But, while the boys do not need as close attention as the girls, they need much. To be sure, their plays and work are athletic and far better than those of the girls for physical development. But no kind of work or play will take the place of regular and systematic exercises. Every kind of labor exercises vigorously some particular sets of muscles and neglects the others; this will give what we might call a one-sided development. It will also give peculiarities of gait and motion that will be, in nine cases out of ten, awkward. The overcoming of these peculiarities and bringing about uniform development can be only by systematic exercises. So boys need the work as well as girls.

The succeeding chapters will endeavor to give work in the following lines: FREE GYMNASTIC EXERCISES, without apparatus, which tend to give health and strength; how to walk, sit, etc. Exercises with SHORT WANDS, BEAN-BAG DRILLS, DUMB-BELL EXERCISES. All of this work will be adapted to the school room with desks, or can be used at home. Then will follow a brief series of LONG WAND and INDIAN CLUB movements that can be used at the

discretion of older people. But let no one think that this is to be a treatise on gymnastics to take the place of complete work in any of the branches. During the last two years I have had very many requests to publish a book containing simple work suitable for the school room, which demands these chapters are intended to satisfy. If they will enable teachers to give better work to their pupils or make their schools more attractive, they will accomplish their purpose.

## CHAPTER II.

### BREATHING.

Without pure blood no muscular action can be of great benefit. The blood is purified by the lungs supplying it continually with pure air in sufficient quantities. No great amount of muscle, beauty, or health can be acquired without proper breathing and strong lungs. To this end it is all important that we should begin early to notice our habits of respiration, and take such daily exercise as will enable us to correct our faults and strengthen our lung power. For this purpose we give the following:

*Cautions.*—Always take the air into the lungs through the nostrils. The mouth is not an organ of respiration. It is for taking food into the system, not air. Air admitted through the mouth comes too directly into the lungs. By entering through the finer passages of the nose, the impurities are removed and in winter the temperature is raised, so that no harm is done to the lungs.

Breathe deeply, pressing the abdominal muscles forward. The air is changed by the muscular action of respiration only in the larger tubes. The more fully this change is made the purer the blood, and the stronger will be the lung power.

Do not hold the shoulders and neck forward and down. Either of these faults will diminish the

capacity of the chest and so admit of less change of air. Such improper positions become habitual if not noticed and corrected, and injure both health and beauty. Hold the shoulders and neck well back.

*Exercises.*—1. Lie flat on the back on the floor or on a couch without a pillow and with the hands at the sides; inhale and exhale slowly and deeply.

2. Stand erect, shoulders and neck well back, hands hanging loosely at the sides. Inhale slowly and deeply, at the same time raising the arms, with elbows unbent, high above the head. Exhale slowly, allowing the hands to descend gradually as the lungs are exhausted. Repeat.

3. Inhale until the lungs are filled to their utmost capacity, throwing the shoulders well back; hold the lungs inflated, first for a quarter of a minute. Allow the air to escape slowly, resuming the natural involuntary breathing. As it is found easy to retain the breath for this time, gradually lengthen the period. Retain the position by pressing out the abdominal muscles, not feeling any strain in the throat. *Never continue the exercise until dizziness ensues.*

4. Inhale as before; force the air into the cheeks, closing the nasal passages. Hold the lungs filled in this way for a time, then allow the breath to escape slowly between the lips.

5. Fill the chest to the utmost, then blow until

the lungs are completely exhausted. Hold them so a few seconds, then slowly fill to the utmost and repeat.

6. Place a tape line around the chest just below the arms. Blow, and bring forward the shoulders until the chest is as small as possible. Notice on the tape line the circumference, then expand to the utmost. See how much the measure increases. You will be surprised how you can increase your chest measure by practising these exercises faithfully for a few weeks.

In all the above work, *inhale through the nose*. Never take breathing exercises long at a time. Repeating any one of the above, two or three times, will be found sufficient; and, continuing longer, might produce unpleasant results. *All gymnastic work should begin with breathing exercises.*

#### HOW SHALL WE SIT?

The answer to the above question is of no small importance. For children in school, and men of sedentary lives, sit for a large part of the time; the majority of the habits then, that mar the beauty and injure the health are contracted from improper ways of sitting. Parents at home and teachers in school should keep a close eye on children, and call attention to improper positions and see to it that they are corrected. A few general principles may be given as to how to sit. Then pages could be written on how not to sit. We will go at the subject in

a positive way first, then point out a few common faults.

Sit well back in the chair. Keep the spine straight. Hold the shoulders the same height and well back. Keep the feet in front of the seat; if you do not the tendency will be to lean forward.

*Do not* sit with one arm or side always toward the desk or table when writing. This habit will tend to a permanent twist of the spine and may produce curvature. Do not sit far down in the chair, it will surely make you stooped, contract your chest, and if you have any tendency to lung disease, trouble in this line may be hastened. Do not lean down over your desk when writing. It will have the same effect as sitting low down in the chair. Putting the feet under the seat will make you lean forward.

#### HOW SHALL WE WALK?

Walking is a sort of universal exercise; every one must walk. As far as it goes it is very well, and is far better than nothing, but it will by no means take the place of arm or body exercise. Walking, at the age of three or four, becomes entirely involuntary, and is not controlled by the mind at all. The most valuable exercise is that which, while using muscle, calls at the same time, for vigorous mental action. A writer in a recent *Popular Science Monthly* has said, that for this reason the arm user is a higher animal than the walker. A

man's legs simply carry him to his work, his hands and arms do the work. So that, while walking is valuable exercise and should by no means be neglected, its value as either a mental or physical drill falls far below hand and arm work or movements of the lower extremities that call for a conscious effort.

Walking, to be of the most benefit, should be in the open air. The more vigorous exercise we take out of doors, inhaling through the nostrils, the better it will be for us. The walk should also be a steady, brisk movement, with some definite aim in view. Sauntering listlessly is but little better than lying on a couch at home. "Carry the head erect, expand the chest, throw back the shoulders, drink in the pure air (through the nostrils), and move briskly enough to secure the end. Let the eye turn from one object to another, and not fixed on the ground in contemplation; stop at times and sit on a rock or the fence, both for rest and the enjoyment of the scenery, and let not the pleasure be turned to weariness by any overstraining for the name and fame of a fast walker." The above quotation from Fowler & De Puy's *Home and Health*, gives an excellent description of a health-giving ramble. The walk should be in loose, untrammelled clothing, and whenever it can be, with nothing in the hands unless it be a stout walking stick that may be swung at will in first one hand and then the other. The

more rolling the territory over which the walking is done, the better. Cultivate the habit of pressing with the toe as the foot leaves the ground. Use the toes as much as possible and the heels as little as may be. It is the "ker-chug" with which the heel strikes the floor that distinguishes the walk of the boor from the man of grace. It is the strength of the calf cultivated by use of the toes in strong walking that gives the most elastic gait.

Those in charge of children should notice how they walk and correct their faults. Call to the boys or girls who walk with a stoop, in the language of Swap, the Yankee, "Straighten up." Call to them until they do "brace up." See that they turn out their toes; that they use their heels little and toes much.

#### WHEN SHALL WE EXERCISE?

Do *not* exercise vigorously either immediately before or after meal time. Slight movement will do no hurt, but violent motion of any kind will prevent the proper digestion of the food. At home, when the temperature of the room will permit, the best times for exercise are upon rising in the morning and shortly before retiring for the night. When the body is untrammelled by clothing is the best time for all movements, but especially for breathing and chest expanding work. For persons in ordinary health a short walk before breakfast is very useful, but for those of delicate constitution, it would be harmful.

At school, the middle of either session is the best time for gymnastic work of any kind. As an opening or closing exercise it is valuable of course, but as a sort of intermission, it rests the mind and puts it in good condition for more study.

#### DAILY EXERCISE.

To be of any great value, exercise must be taken regularly and systematically. Daily work is of course the best, and each person should, by all means, have some time each day for individual culture. Breathing exercise should begin the work; movements to exercise vigorously the different parts of the body should then be chosen from the work given in the following chapters. Choose this work so that the different muscles will be developed harmoniously. If you find upon examination one arm or one leg is stronger than the other, choose those exercises that will bring it up to the other in strength, then use both as nearly alike as possible. For one-sided development will give weaker organs on one side and a consequent tendency to disease. If you have a tendency to narrow-chestedness, practice those movements expanding the chest and using the muscles about the shoulders. If your digestive organs are out of order, take the drills that bring into active play the abdominal and waist muscles.

In school, of course, this work cannot be made individual, but the recitation will be concert work.

But if the teacher will find out the needs of the pupils at recesses or noons and then prescribe work for each one to take at home, great good may be done the little folks. If possible, schools should give some time each day to regular gymnastic work. Five minutes daily is better than ten minutes on alternate days. Have all the work done vigorously and promptly. Don't let any of the class lag and be spiritless in their work; animation is one of the best parts of the exercise.

*Don't Overdo.*—Seldom take an exercise as many times as you possibly can. Seldom use very heavy weights. It is as bad to take too much exercise as it is to take none.

## CHAPTER III.

### EXERCISES WITHOUT SPECIAL APPARATUS.

The following work is given, not with the idea of supplying work to be taken to music, but simply free gymnastics, suitable for home or school as health-giving exercise, not as ornamental drills. Whenever the weather will permit take your exercise either out doors or with open windows. *Be sure* the room is well ventilated during the gymnastic period. Much of this work cannot be taken in the school-room, as there is lack of room, and the work is partly unsuited to mixed classes. But those that your good sense tells you are right, take. The others may be described to the little ones, and may be taken on the play ground or home.

1. *Exercises for the Biceps*.—Any drawing of the forearm up to the arm exercises this muscle, as you may see by grasping the arm midway between the shoulder and the elbow, then, drawing up the forearm, you can feel the swelling of this muscle as it acts.

2. Take some weight in each hand, as a flat-iron, two or three books, a bag of shot, a car-coupling link, or anything of the kind. Keeping the arm at the side, draw the forearm up so that the hands and weights are at the shoulder. Repeat ten or twenty times according to the weight. Have equal

weights in each hand. Stand with the heels together, the toes apart, the knees unbent. Don't use in any of these exercises so heavy a weight that the body must be swayed.

3. Standing behind an ordinary straight-backed chair, grasp it, one hand holding each side of its back near the top. Keeping the back of the chair in line with the forearm, raise the chair by bending the elbow, arms at the sides, until the seat is over the head, legs pointing up. Lower slowly to the floor.

4. Screw into the top door-jamb or some overhead beam, two strong screw-hooks about two feet apart. Suspend from these by means of cords strong enough to bear your weight about two and one-half feet of a pitchfork or rake handle. It should be just high enough that it can be grasped firmly by standing on the tip-toes. If preferred, the bar may be long enough to extend clear across the door and let into cleats nailed on the side jambs. Standing on a chair, grasp the bar in both hands and hold it against the chest as high as the shoulders. Take the feet off the chair and hold the body up by the hands for a few seconds. Then lower slowly to the floor. Repeat until you begin to feel tired.

5. Standing under the bar described above, pull yourself up by the arms until you can place your chin over the bar. Repeat until you are tired.

This "chinning up" boys can generally do easily. Those who cannot should practice the exercises suggested in Sections 2, 3 and 4 vigorously, day after day, until they find themselves in the course of a few weeks able to "chin up."

6. *Back-arm Work*.—The office of the triceps muscle, the one on the other side of the arm from the one described in Section 1, is to straighten the arm after it has been bent by its opposing biceps. Lay the back of the right arm in the palm of the left hand. As you straighten the arm after bending you can feel this muscle swell in action.

7. Take in each hand some weight; hold the weights just above the shoulders, and stand with heels together, toes apart. Straighten the arms up, raising the weights as high as possible; lower slowly, and repeat until you are weary. Don't bend the knees in this exercise; keep the back as straight as you can.

*Note*.—Convenient weights for such exercises as the above are sacks nearly filled with corn. For girls they should contain two quarts for beginning exercises; for boys and women a gallon; and for men nearly two gallons. These weights will cost only a trifle and will answer the purpose of a more expensive pair of dumb-bells.

8. Lie face down upon the floor with the hands by the shoulders, as in the Fig. 1. Keeping the body stiff, push up to the full length of the arms,

the toes and hands being the only parts touching. Repeat as many times as you can without fatigue.

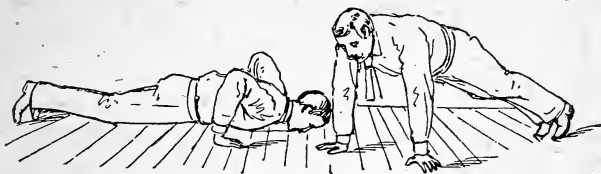


Fig. 1.

9. Place two chairs back to back about two feet apart. Take hold of the tops of the backs as in Fig. 2, and, touching the toes, keeping the body stiff above the knees, lower it until the shoulders are between the hands; then push up, using the toes as little as possible, until the arms are straight. Repeat. [Hereafter when we use the word *repeat*, it will be understood to mean as many times as you can without serious fatigue.



Fig. 2.

Very seldom take an exercise until you cannot repeat it.]

10. Taking hold of the chairs as above, draw up the feet supporting the weight upon the hands. Keeping the feet up, lower the body as much as possible without touching the knees; then push up until the arms are straight, the body supported on the backs of the chair by the hands. This maneuver

is called "the dip," and is the most difficult of the simple back-arm exercises. Work away patiently at the previous movements, and you will soon be able to do the dip.

11. *The Forearm.*—The muscles located on the forearm are those that control the motions of the hand; that bend and straighten the fingers, move the wrist back and forth, etc. Whatever, then, tends to make the grip or wrist stronger, makes larger and more shapely the forearm.

12. Extend the arms horizontally to either side with the palms up and the hands open as wide as possible. Shut tight and open wide for twenty times. This you will find to tire your hands very much, and vigorously exercise the forearm.

13. With the arms in the same position, but the fists closed, move the wrists vigorously in every direction while you count forty slowly.

14. A simple grip-machine, which any school boy can make in a few minutes and any mechanic can improve upon, is illustrated in the accompanying cut. Take two pieces of inch-board eighteen inches long. Whittle one of them into the shape of No. 1 in the cut, having a notch cut around it on all sides, but the straight one at A, with a hand-hold of about four inches

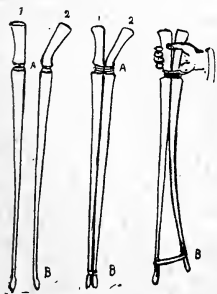


Fig. 3.

above the notch, and a slender arm about fourteen inches long below. No. 2 is the same, except that the hand-hold is made to bend away from the straight side. Tie the straight sides together with a stout cord around the notch A. Around the lower end of the long arm, as B, wrap tightly a rubber band, such as can be bought for a cent at any drug store. When now the handles are taken in the hands and pressed together repeatedly, the grip will be exercised as violently as you may wish.

15. *The Shoulder*.—The exercise of the muscles about the shoulder is of great importance from the fact that as these are developed or neglected in childhood, so the chest is large or small, the lungs powerful or weak. The naturally narrow-chested child may have his lung power greatly increased by faithful attention to the culture of the shoulder muscles; while stooped or round shoulders are practically impossible if these muscles are uniformly exercised. There are three sets of these muscles producing motion in as many directions. In front and on the upper part of the chest are the ones we shall call simply the *pectoral*. Their contraction brings forward the shoulders or draws the arms to the front. On top is the fleshy triangle called the *deltoid*. It raises the shoulders or lifts the arm from the side. On the back, the pectoral muscles are opposed by those we shall name the *dorsal* muscles, whose work is to draw back the

shoulders and arms. The exercises given will bring all of these into play, and should be so taken as to exercise each set equally, unless one is found to be weak, when it should have special attention.

16. Stand with heels together, toes apart, both knees unbent, hands hanging loosely at the sides.



Fig. 4.

[Hereafter we will simply say *stand in position*, when the above is wished.] Lift the shoulders as high as possible, then force them as low as you can. Repeat fifteen or twenty times. (*See cut.*) Be sure to let the arms simply hang at the sides. Move the head as little as can be.

17. Standing in position, force the shoulders alternately forward and back as far as possible. Repeat as above.

18. Take the position of Fig. 5, backs of the fists to the chest, thumbs down, elbows as high as the shoulders. Without straightening the arms at all, strike both elbows down and back as hard as you can. Try to touch the elbows behind the waist. Repeat. You probably cannot make them meet at first, but you can come very near it in a short time with faithful practice. It is as good exercise if you can't touch them as if you do.



Fig. 5.

19. From the same position, straighten the arms and strike both hands horizontally back from the shoulders, trying to strike the palms of the hands together. Recover the position and repeat. Keep hands and arms as high as the shoulders throughout the movement; in position, keep the elbows as high as the shoulders.

20. With a weight in each hand lie flat on the back on the floor. Extend the arms at the sides. Without bending the elbows, bring up both hands and the weights, and touch them above the chest; lower slowly to the floor. Repeat.

21. Lying as above, extend the hands with the weights above the head on the floor. Without bending elbows raise the weights to a vertical position, then lower until beside the hips. Return to position over the head and repeat.



Fig. 6.

22. Standing in position, place the tips of the fingers in the arm-pits, elbows as high as the shoulders. Straighten the arms down at the sides, hands open and backs out; then sweep the whole arm, unbent elbow, back of the hand up, to a vertical position over the head. Recover the position of the Fig. 6 in reverse order. Make the motion from the position to the highest point one continuous sweep. Repeat.



Fig. 7.

23. Place the finger-tips in front of and against the shoulder-joints, elbows as high as the shoulders. (Fig. 7.) Straighten the arms out in front, palms in, and sweep with unbent elbow, horizontally back as far as possible; recover position in reverse order. Repeat. Keep hands and elbows always as high as the shoulders.

24. Hands on top of shoulders, elbows high. Straighten the hand up to the vertical, sweep down to the side and recover in reverse order. Repeat.

N. B.—All shoulder work is invaluable for chest expanding.



Fig. 8.

25. THE TRUNK AND WAIST.—These muscles are situated, as the heading indicates, upon and about the trunk. Their use is to bend the body forward or back, from side to side, to turn it from right to left or the reverse, and when all are of uniform strength to give that erect carriage that is one of the main beauties of mankind; or if not uniformly developed, give an awkwardness that is more homely than defect of facial beauty.

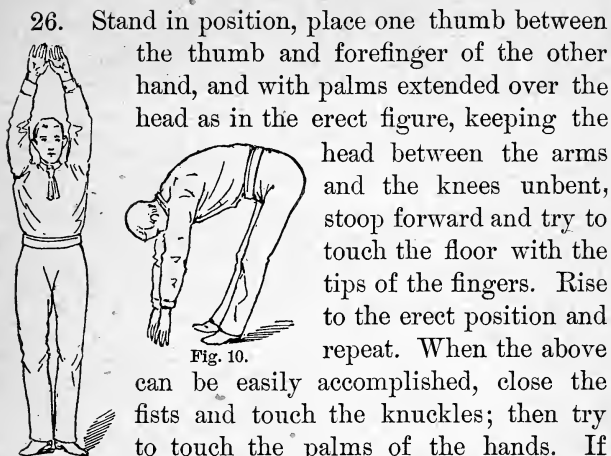


Fig. 9.

Fig. 10.

26. Stand in position, place one thumb between the thumb and forefinger of the other hand, and with palms extended over the head as in the erect figure, keeping the head between the arms and the knees unbent, stoop forward and try to touch the floor with the tips of the fingers. Rise to the erect position and repeat. When the above can be easily accomplished, close the fists and touch the knuckles; then try to touch the palms of the hands. If still harder work is wanted, stand on a book and touch the hands to the floor.

27. Lie flat upon the back upon the floor, hands clasped behind the head. Without taking the feet from the floor or bending the knees, raise the body to the sitting posture, then let it back slowly to the floor. Repeat.

28. Lying in the same position as above, without bending the knees or lifting the shoulders from the floor, raise the feet to a vertical position. Lower slowly and repeat.

*Note.*—If the exercise of Sec. 27 cannot be done, have some one hold the feet or lay a weight on them. If Sec. 28 is too hard, hold a weight under the head. Before long these can be accomplished with-

out the help. If it is desired to make the work of Secs. 27 and 28 harder, hold a weight in the hands under the head in the one and between the feet in the other.

29. Stoop as in Fig. 10, take a weight in each hand or in both; rise erect without bending the knees. Repeat.

30. Without bending the knees or lifting either foot from the floor, sway the body to the right as far as possible, then to the left. Repeat.

31. Standing in position, twist the body around to the right as far as possible, then to the left. Repeat.

32. *The Thigh.* The muscles of this part have for their purpose the bending or straightening of the leg. The muscles on the front extend the leg, those upon the back bend it. The one across the front crosses the legs, and so is called the tailor's muscle.

33. Stand in position with arms folded. Sink as low as possible by bending knees and hips. Rise erect and repeat.

34. Take the toe of the left foot in the hand, stoop and touch the left knee to the floor and rise erect without letting go of the toe. Do the same with the right foot.

35. Stand in position with the arms folded.



Fig. 11.

Hold the right leg out in front and sink as low as possible (see Fig.), then rise without touching the right foot to the floor. Repeat with the other foot.

36. Standing in position, keep the thighs side by side, the knees together, and raise first one foot and then the other, as high as possible by bending the knee. Repeat with each foot ten times.

37. Stand with the feet about 20 inches apart. Without jumping, draw them together, sliding over the floor. This exercise is quite difficult, and will require much patient practice before it can be done easily. And in this place it might be said that in most exercises, the effort made to perform the act is as good exercise as one may take to acquire the necessary strength.

The above exercises, of course, are not expected to bring into play all the muscles of the thigh. But to give illustrative work for some of the most important.

38. *The Calf.* The all-important muscle of the lower leg is that which has, for the pupil, such an unpronounceable name; the one used as the important muscle in walking and running, the *gas-*

*trochnemius.* This muscle is the fleshy part of the calf, and its cultivation gives this part of the lower extremity its beauty and power. Its use is to lift the body and the toes, and impart the motion of the walk or run. The speed and ease of the gait is largely dependent upon this muscle, and it is the one that feels the main fatigue of a long stroll or run.

39. Standing in position, rise on the tip-toes and sink slowly. Repeat.

40. Without bending the knee, jump across the room and back on the toes.

41. Hop across the room and back, first on the right foot, then on the left.

42. Practice walking and running on the toes, and in walking form the habit of pressing with the toe as the foot leaves the floor or ground. Bicycle riding is also fine practice for these muscles.

43. *General Work.* The above exercises should be combined daily into series of movements, bringing into play as many muscles as possible. Here is a suggestive series indicated by the number of the sections as far as possible: Breathing exercise No. 2, three times; Sec. 2, with two books as weights, ten times; Sec. 7, with same weight, ten times; Sec. 12, fifteen times; Secs. 16 and 17, each ten times; Sec. 26, five times; Sec. 33, five times; Sec. 36, ten times; Sec. 39, fifteen times. By this series you will see the most important muscles of the body

have been exercised vigorously, and in a short time work has been done that will lead to uniform development. After practicing the above and extending the number of times taken, until enough time is consumed, change to the more difficult exercises under each head. If you have found by trial that some particular muscles are weak, give them more work to do than the others, and they will become as strong as you wish. If you want to obtain the best results, *practice daily*.

## CHAPTER IV.

### SHORT WANDS.

44. Of the various forms of apparatus suitable for use in the schoolroom, no one is perhaps more generally practical than the SHORT WAND. It consists of a stick about seven-eighths of an inch in diameter and from two to two and one-half feet long. Seven-eighths round moulding or broomstick sawed into appropriate lengths will be just the thing.

The wand exercises are measured, taken by numbers in a certain order, and so can be taken to music. When the exercises are being prepared, pupils and teacher should form the habit of counting; then the series and movements, learned in order, may be readily put to music. The system of counting used is based upon eight as a unit. When the order is given, the leader counts eight for the movements in a given direction, then begins and counts eight for those in a new direction. The movement will be away from the starting position on the odd counts and back to it on the even.

45. It is generally best, in order that no time may be lost, to let the command for the change of exercise take the place of the last count. Suppose the movement is from right to left, the first command would be: *First movements*, RIGHT, 1, 2, 3, 4, 5, 6, 7, LEFT; 1, 2, 3, 4, 5, 6, 7, ALTERNATE;

1, 2, 3, 4, 5, 6, 7, BOTH; 1, 2, 3, 4, 5, 6, 7, 8. Here it will be seen the command for change of direction or order has taken the place of the eighth count. This modification carried all through the series prevents any break in the time when practicing for music.

46. There are several varieties of taking the work. In general there are two opposing parts, such as right and left, up and down, front and back; then moving from the starting position to the one of these, back on the even count and out in the opposite direction is the *alternate*; while swinging from one extreme to the other without stopping, as from left to right, is called *both*. For each command there should be eight counts.

47. FORMING THE CLASS.—Let the pupils stand in the aisles, so that when the hands hang by the sides they may be swung out either way into the opening between the desks without coming in contact with them. If the class is too large, half can do work briskly for five minutes, then the others, and so on. Pupils should be clear of the walls; little good can be done in the outside aisles. When ready for work, all should stand with heels together, toes apart, both knees unbent, body leaning a little



Fig. 12.

forward, head back, chin down, one end of the wand in the right hand, between the thumb and forefinger and held by the side, the other end resting against the right shoulder; keep both shoulders the same height. This is the position all should assume each time upon the call *Attention*, or *Carry wands*.



Fig. 13.

48. The first maneuver is the salute. At the command, *Class, SALUTE*; the wand is carried up against the chest to the position of Fig. 13. Holding the hand still against the front of the chest, make a circle with the other end of the wand and return to the side. In order that all may execute this maneuver together, it is best to count four for it. On the first count carry the wand up to the front of the chest; second, make the circle; third, carry the

wand back to the shoulder, putting the top in place with the left hand; fourth, drop the left hand to the side.

49. In the following work there are two parts to each command for change of position or movement. The part in italics is simply descriptive, and no motion should be made until the part in small capitals has been said. This last should be spoken in a quick tone of command, and the change made

as quickly as possible after it has been given. After the words of change position will follow a brief description of the movements, then the changes used.

In these, the abbreviations, R. for right, L. for left, U. for up, D. for down, F. for front, B. for back, Alt. for alternate (see Sec. 45), Bo. for both. Remember to use eight counts with each change (see Sec. 45).

50. *First, POSITION.*—Let the wand drop over to the left into position of Fig. 14.

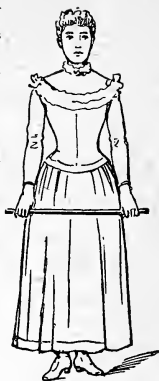


Fig. 14.

51. *First Movements, RIGHT.*—Without bending the elbows, swing the hands out to the right side until the R. hand is as high as the shoulder, Fig. 15. R., L., Alt., Bo.



Fig. 15.

52. *Second Movements, RIGHT*—Swing



Fig. 16.

the wand horizontally around behind the back, Fig.

16. Hold the body as still as possible. R., L., Alt., Bo.

53. *Third Movements*, RIGHT.—Holding the right hand at the side, swing the left hand up to the right shoulder as in Fig. 17, then back to the starting point. R., L., Alt.



Fig. 17.

54. *Fourth Movements*, RIGHT. — On the first count swing the left hand to the right shoulder as above; on the second, swing the right arm out at the side, as in Fig. 18; on



Fig. 18.

the third let the right arm drop at the side; and on the fourth the left hand returns to position. Repeat during the remaining four counts. R., L., Alt.

55. *Second. POSITION*—Wand against the chest as high as the shoulders. Fig. 19.

56. *First Movements*, RIGHT.—Strike the right hand down at the side to the position of Fig. 17; recover. R., L., Alt., Bo.



Fig. 19.

57. *Second Movements*, RIGHT. — Thrust the wand out horizontally at the side as in Fig. 18; recover. R., L., Alt., Bo.

58. *Third Movements*, RIGHT. — Straighten both arms out in front, with the wand vertical, the right hand up, Fig. 20; recover. When the command left is given, the



Fig. 20.

left hand up and right down. R., L., Alt.

59. *Third*, POSITION. — Extend the hands horizontally in front, as in Fig. 21. In each of the movements from this position, hold the arms perfectly straight.



Fig. 21.

60. *First Movements*, DOWN. — Drop the arms to the position of Fig.



Fig. 22.

14, and back to starting position. On the command, *up*, raise the arms to a vertical position, as in Fig. 22. U., D., Alt., Bo.

61. *Second Movements, RIGHT.*—Twisting the right hand down and the left hand up, roll the wand over until it is horizontal again, then recover. Cut 23.

62. *Fourth, POSITION.*—Raise the arms to the vertical, as in Fig. 23.

63. *First Movements, RIGHT.*—Carry the right hand to the front, the left hand back until the wand points directly to the front. Recover. R., L., Alt., Bo.



Fig. 23.



Fig. 24.

64. *Second Movements, FRONT.*—Bring down the wand to touch the chest; leave the elbows as high as possible, Fig. 24. At the command, *Back*, bring the wand down as low as possible behind the shoulders, Fig. 25, F., B. Alt., Bo.



Fig. 25.

65. *Third Movements, RIGHT.*—Strike the right elbow down behind the back, the left arm going over the head. Fig. 26, R. L. Alt. Bo.

66. *Facings. First, POSITION.*—Stand as in Fig.

14. *First Movements, RIGHT.*—All the facings are made in the same way. The right foot is barely lifted clear of the floor, and the body turned on the left heel. In the first movements the body is faced one-quarter to right, the hands are thrown out to the right into the position of Fig. 27, with the right hand up. On the second count, face to the front again and bring the hands to position. R. L. Alt.



Fig. 26.

67. *Second Movements, -RIGHT.* Start as above by facing to the right and throwing out the hands. On the second count face to the right again and raise the hands to the



Fig. 27.

vertical over the head. This will face you in the opposite direction from the starting. On the third face to the left and bring the hands back to position of Fig. 27; on the fourth face to the left to first position. Repeat for the remaining four counts. R. L., Alt.

68. *Third Movements, RIGHT.*—Face to the right four counts, carying the hands up on the first two and down on the third and fourth; then face to the left in reverse order. R. L.



Fig. 28.

69. *Charges, POSITION.*—The position for these movements is the same as the starting one for the above (Fig. 14).

70. *First Charges, RIGHT.*—On this command step forward with the right foot, *bending the right knee, keeping the left leg perfectly straight*, carry the body forward over the foot; at the same time swing both hands up and over the head until the wand is behind the back. Fig. 28. Recover. R., L., Alt.

71. *Second Charges, RIGHT.*—Stand sidewise in the aisle. Step off to the right and a little front, bending the right knee, holding the other stiff; at the same time swing the left hand over the head and hold the right hand against the chest, so that the wand will be vertical. Fig. 29. R., L., Alt.



Fig. 29.

*Note.*—Whenever it is desired to stop the exercises for a time, give the order, *Rest*. The pupils will then drop the hands to the first position, Fig. 14, and stand at ease until called to the next movement. When you wish to close an exercise, give the order, *Carry*, WANDS. The left hand will then carry the left end of the wand to the right shoulder and return to the side. The position of the carry wands is shown in Fig. 12.

72. COMBINED EXERCISES.—These exercises in

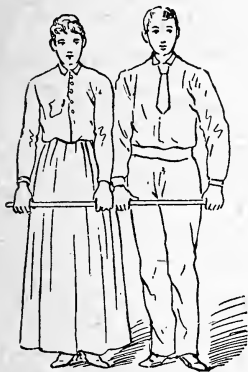


Fig. 30.

which the pupils work together are very attractive generally, and taken occasionally will help to give zest to the work. They may be taken in pairs as in the following suggestive exercises, or three or four may take them together. By noticing closely the following scheme we think the exercises may be enlarged at will. When ready for work, command, *Combined Exercises, Right, FACE; to places, MARCH*. These changes will bring those pupils who are to take together, standing side by side along the aisle. See that the pairs or trios are far enough apart to take the various movements without coming in contact.

73. *First, POSITION.*—Each will drop the wand over to the left, and the one standing to the left will

let the wand slip three or four inches through his hand, so that both can take hold of both wands with their "inside" hands. See Fig. 30. Hold tight with these hands to keep the two wands in line.

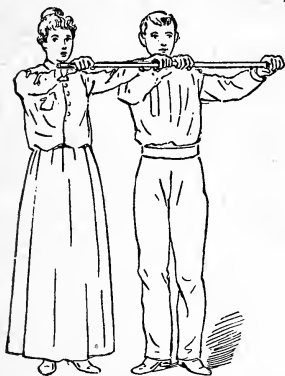


Fig. 31.

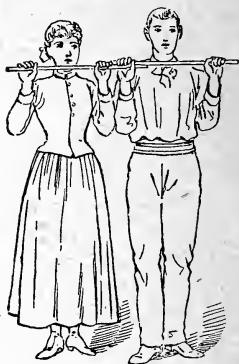


Fig. 32

74. *First Movements*, RIGHT.—Bending the elbows and keeping the wands horizontal, swing the hands out at the side as in Fig. 31. R., L., Alt., Bo.

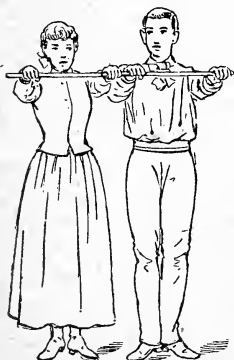


Fig. 33.

75. *Second*, POSITION.—Fig. 32. *First Movements*, RIGHT.—Shoot both hands out at the side as in Fig. 31. R., L., Alt., Bo.

76. *Third*, POSITION.—Hands extended horizontally in front as in Fig. 33.

*First Movements*, DOWN.—Drop the hands to the position of Fig. 30. At the

command *Up*, raise them to the position of Fig. 34. D., U., Alt., Bo.

77. *Fourth, POSITION, Fig. 34.—First Movements, FRONT.*—Bring the hands down to the chest in front and return. At the command, *Back*,

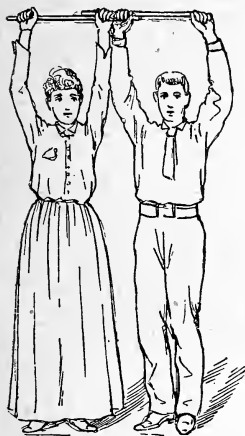


Fig. 34.

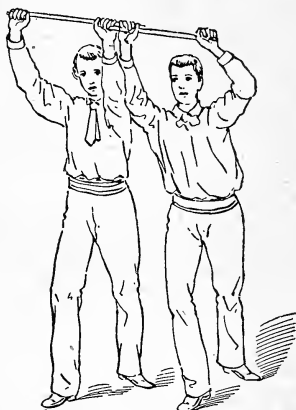


Fig. 35.

bring the wands down to the shoulders behind. F., B., Alt., Bo.

78. *Charges, POSITION.*—The same as Fig. 30.

RIGHT, charge forward as directed in Sec. 70, throwing the wands over the head as in Fig. 35. R., L., Alt.

79. Have the class carry wands. Then say: *For combined facings, Inward, FACE.*—The pairs

will then face toward each other. POSITION. Let the wands drop to position of Fig. 36.

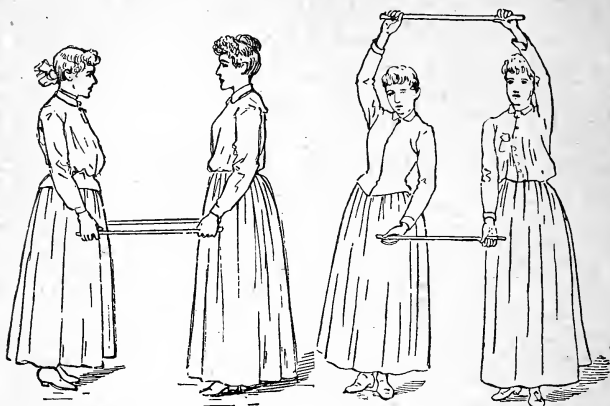


Fig. 36.

Fig. 37.

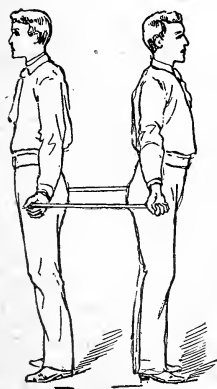


Fig. 38.

80. *First Movements, FRONT.*  
 —On the first count face to the front, and throw the front hands up over the head, bringing the hands into the position of Fig. 37. Second count, face on around and bring the hands that were over the head down as in Fig. 38. Then face on one-quarter round, bringing the hands now to the front over the head, and on the fourth count bring them down and face into position of starting.

Go on around again for the remaining four counts. Then upon command *Back*, go twice around the other way; upon *Alternate*, once each way.

81. The above brief exercises are intended to be simply suggestive. Any energetic teacher can enlarge and improve them at will.

MUSIC.—All physical exercise is made much more attractive if taken in time to music, and there is no reason why such an accompaniment may not be had anywhere.

Where an instrument, either piano or organ, can be obtained, there is then, of course, no difficulty. Any march where the time is clearly marked, played as staccato as possible, so that all will feel like keeping time with the feet, will answer the purpose. *General Grant's Grand March* is a very good one.

For many exercises, however, waltz time is much better. This is especially true of club swinging, and any movements requiring slow time. Take one count to the waltz measure and play fast or slow as required, and the series will come out much better than to march music. *Black Hawk Waltz* is very satisfactory.

Many popular airs either played or sung make fine gymnastic music. JOHN BROWN, TRAMP, TRAMP, *The Battle Cry of Freedom*, are good examples.

When no piano or organ can be had, if a violinist or cornetist, or even one who plays the accordeon

or mouth-organ is in the school or neighborhood, any of the airs mentioned so played will do nicely. When no instrument can be had, nothing is better than the voice accompaniment. Let those taking the exercises sing or hum the airs, or better let one section sing for the other to exercise.

## CHAPTER V.

### DUMB-BELLS.

82. The dumb-bell has long been a most popular form of light gymnastics, and there are many most excellent books of exercises with it. For this reason we give here a very brief series and one that brings into play quite a variety of muscles, referring our readers to more complete works if they wish to go further in this line.

83. The regular wooden dumb-bells can be bought of any dealer in gymnastic supplies, or any of our book or hardware dealers can get them for you. The expense will vary from 50 cents to \$1.00 per pair. But all the work can be done very successfully with bean-bags, and these can be made at a merely nominal cost by yourselves. Make a sack of drilling or ticking that will hold about three pints. Partially fill with beans or corn. When sewed up it may then be grasped with one-half the corn on either side of the hand, and thus it makes a very fair dumb-bell. The bells or bags should not weigh more than a pound and a half for little ones; they should grade from that up to four pounds for grown persons. That will be heavy enough for exercise work for even strong men.

84. Pupils will take places on the floor as directed for forming the class in wands. They will

stand in position with one bell in each hand and hanging naturally at the sides.



Fig. A.

85. At the command *Parade, REST*, all will (1) stoop quickly forward without bending the knees, lay the bells on the floor between the toes, (2) rise erect, (3) and fold the arms. Order, *Take BELLS*. (1) Unfold the arms, (2) stoop forward without bending the knees, and (3) rise erect. These maneuvers may be used whenever it is desired to give the class a rest, and if taken right is in itself a good exercise.

86. *First, POSITION*.—Bring the bells up to the shoulders as in Fig. A. *First Movements, RIGHT*.—Strike down in front at an angle of forty-five degrees. R., L., Alt., Bo.

*Second Movements, RIGHT*.—Strike out horizontally in front. R., L., Alt., Bo.

*Third Movements, RIGHT*.—Strike up at an angle of forty-five degrees.

*Fourth Movements, BEGIN*.—For eight counts strike the right hand up and the left hand down, each at forty-five degrees; then change to left, up, and right, down, for eight counts; then for eight counts change the direction of the stroke on each odd count. First, right, up and left, down; then the reverse, etc.

87. On any of the above movements except the last, the *reciprocate* motion may be taken. In it one

hand leaves the position while the other is coming to it. Each hand moves on each count.



Fig. 39.

88. *Second, POSITION.*—Fig. 39, right hand extended horizontally at the side, the left bell in the arm pit.

*Movements, BEGIN.*—Bend the right elbow and moving the bell down, not to the front, place it in the arm-pit; at the same time straighten the left arm by swinging the bell down and to the left, describing quite a large semi-circle. On the second count, reverse the movement and come back to the position of the cut.

89. *Third, POSITION.*—Fig. 40, right hand extended at side, left bell at shoulder joint, elbow as high as the shoulders, bells vertical.

*Movements, BEGIN.*—Swing both bells around in a horizontal semi-circle until the right bell is at the shoulder and the left extended. Swing around into the position of the figure on count 2, etc.

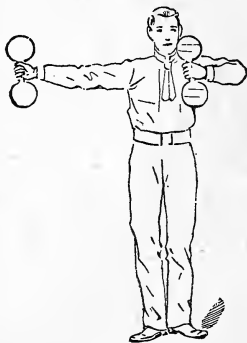


Fig. 40.



Fig. 41.

90. *Fourth, POSITION.*—Fig. 41, right arm extended, left bell held on top of the shoulder, elbow as high as the shoulders, bells horizontal.

*Movements, BEGIN.*—Change by swinging through vertical semi-circles, so that the left arm will be extended and the right bell on top of the shoulder joint.

91. *Fifth Position.*—Fig. 42, right arm extended, left bell held behind the right shoulder.



Fig. 42.



Fig. 43.

*Movements, BEGIN.*—By a vertical half-circle and turning the bell over, swing out so that the right bell is behind the left shoulder, and the left hand extended at the side.

92. *Sixth, POSITION*.—Extend the hands horizontally in front, bells vertical and together. When this position is taken, bring all the bells up together, and the noise will delight the pupils.

93. *Movements, RIGHT*.—Holding the arm perfectly straight, swing it down and describe a circle at the side, so as to strike the other bell on top, on the second count. While one hand is making this circle, the other should be held motionless in front. Upon the order *Both*, describe the circle with both hands, striking the bells together vertically. R., L., Alt., Bo.



Fig. 44.

94. *Seventh, POSITION*.—Bring the bells up in front of the shoulders; hold them horizontal and pointing from left to right, the balls together. Fig. 44.

95. *First Movements, RIGHT*.—Ex-



Fig. 45.

tend the right arm horizontally at the side, and place the left bell against the right shoulder, holding the left elbow as high as the shoulder; turn the hands over so that the backs of both hands shall be up. Fig. 45.

96. *Second Movements, RIGHT*.—Step off to the

right side, bending the right knee, keeping the left knee unbent; by this means carry the body forward over the foot; at the same time bring the hands into the position described in the last section. Fig. 46. Recover. R., L., Alt.

97. *Third Movements*, RIGHT.—On the first count take the position of Fig. 46, as described in



Fig. 46.

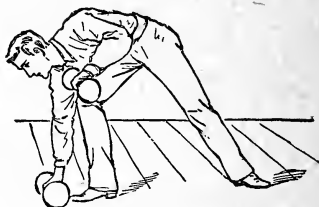


Fig. 47.

the last section; on the second, keeping the hands in position, bend the hips until the bell touches the floor. Be sure and touch the floor by bending the knee and hips. When the bell touches the floor the back should be horizontal. On the third count, rise to position of Fig. 46. On the fourth, recover position. Repeat for the remaining four counts. R., L., Alt.

98. *Fourth Movements*, RIGHT.—On the first and second counts make the same movements as on the same counts of Sec. 97. On the third count, place

the left hand down on the floor beside the right, Fig. 48. On the fourth, place the right foot beside the

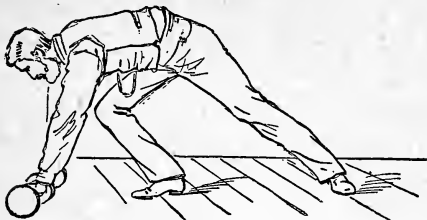


Fig. 48.

left, and straighten the body so that it will be supported by the arms and toes, Fig. 49. The fifth,

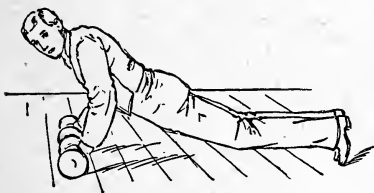


Fig. 49.

draw up the right foot to the position of Fig. 48. The sixth, put the left hand to the shoulder, Fig. 47.

Seventh, rise to

position of Fig. 46. Eighth, recover starting position. For left, just reverse the movements that have been taken to the right. R., L.

99. *Fifth Movements, RIGHT.*—For the first four counts the movements are the same as in Sec. 98; this will bring the body into the position of Fig. 49. On the fifth count, holding the body stiff, bend the elbows and let the body sink close to the floor. On the sixth, push the body up to the arm's length. Repeat this last maneuver on the seventh and eighth counts.

On the first, second, third and fourth counts of the next set, recover the position; rest for the remaining four counts. Reverse the above for left. R., L.

100. *Sixth Movements, RIGHT.*—The movements for the first four counts are the same as those of Sec. 98; but the remaining four are just the reverse. The fifth count, draw up the *left* foot; on the sixth, place the right hand to the shoulder; on the seventh, rise with the left arm out at the side, and the left knee bent and the right straight. On the eighth, take the starting position facing in the opposite direction from the start. Now by repeating the movements just given for eight counts, you will find yourself turned clear around, so that you are in the position of the start, facing the same way, thus completing this set of movements.



Fig. 50.

101. *Bean Porridge Exercises. First, POSITION.*—At this order, the pupils will so turn as to face each other, letting the bells hang at the sides. They should be about as far apart as the arms, bent as they are in Fig. 50, and the bells, touching, would let them.

102. *First Movements, BEGIN.*—At this command each member of the class will strike the bells

together behind the back, then in front of the chest, then extending the arms in front, each pair will strike both bells together as in Fig. 50. Repeat once. Now each strike the bells together behind, then in front of the chest, then the pairs strike the right bells together, each in front of the chest, pairs the left bells, each in front of chest, pairs both bells. This, it will be seen, will make the same rhythm as the old "Bean porridge hot" play of clapping the hands. The time may be given the class either by the use of the old verse—

—" Bean porridge hot,  
 Bean porridge cold;  
 Bean porridge best  
 When six day old,"

with a stroke of the bells on each word; or, you may count it thus:

1, 2, 3, pause; 1, 2, 3, pause; 1, 2, 3, 4, 5, 6, 7.

103. *Second Movements*, BEGIN.—These are the same except that instead of striking the bells together behind the back on the first count they are "cracked" at arm's length above the head.

104. *Third Movements*, BEGIN.—Same as the others except that the pupils stoop forward and touch the bells to the floor on the first count, instead of striking them together as in the other movements.

105. *Alternate Movements*, BEGIN.—On the first count of the first "1, 2, 3," strike the bells

together behind the back. On the first count of the next "1, 2, 3," strike them over the head; while on the last, strike the bells to the floor. This will make an alternate between the three other movements.

106. *Bean Porridge Sets,*

POSITION.—These movements cannot be taken unless there is room enough for the pupils to stand as in Fig. 51. There are the three sets of movements, and they alternate



Fig. 51.

from this position as from the other "Bean porridge" movements. The modification is only in the putting together of the fours. Each will strike the bells together behind (or above or on the floor according to the movement), then together in front of the chest, then straighten both out at the side as in the cut; repeat for the "1, 2, 3;" then on one strike behind (as in the others); on two in front of the chest; on three, A and B, C and D, will strike their right bells together; four, each will strike the bells to-

gether in front of the chest; five, B and C, A and D will strike left bells together; six, strike bells in front of the chest; seven, straighten out the arms and strike all bells together as in Fig. 51. Repeat and modify as desired.

## CHAPTER VI.

### BEAN BAGS.

107. As we have said in Sec. 83, bean bags may be used as dumb-bells, and much profitable work taken in this way. But the regular bean bag movements are those in which the bag is thrown from the hand and caught. A few of these are given, and we dare say they will give a start that will suggest many more. The throws from the back over the shoulder, etc., are not enlarged upon, as they are not practicable for home and school use, there being some danger to the furniture when a novice is practicing in a room.

108. There are two sets of throws, the one using only one bag and throwing it generally with both hands; the other with a bag in each hand, and throwing these in various combinations. In class work, the leader should count for each time the bag is thrown and caught, odd counts for the throws, even for catching. All should try to throw so that the throwing and catching would be in time and rhythm, and all may be done to music. Bean-bag work, then, becomes one of the most attractive forms of exercise. Don't try to throw very high at first. When beginning, barely let the bag leave the hand; then gradually lengthen the distance of the throw, and all can be done with accuracy.

Hold the body as still as possible in all this work.

109. *Single bag exercises, First, POSITION.*—Take the position of Fig. 52, the bag held in both hands under the chin.



Fig. 52.

*Ready, BOTH.*—Straighten up both arms, throwing the bag vertically. Catch and repeat. Use the eight counts, throwing on the odd and catching on the even.

*Ready, ACROSS.*—At the word ready, the bag will be taken in the right hand, held on the hand just above the shoulder.

On the first count it will be thrown over the head to the left, so that it can be caught above the shoulder. Then throw it back, so that it can be caught by the other hand over the shoulder, continue for the eight counts.

110. *Second, POSITION.*—Hold the bag in both hands down in front, as in Fig. 53.

*Ready, BOTH.*—Without bending the elbows throw the bag up in front and catch. When the bag touches the hands, let them drop at once into the position. Use eight counts.

*Ready, ACROSS.*—Take the bag in the right hand, throw out at arm's length in front, catch in the left, and let the hand come down to the side, then throw back to the right, etc.



Fig. 53.

111. *Pendulum Throws*, BOTH.—Swing both arms as far as possible to the right and throw up; when the bag is caught, swing immediately to the extreme left and throw. Thus throw, letting the arms swing from side to side like a pendulum.

112. *Pendulum, First*, ACROSS.—Take the bag in the right hand, throw across the front of the body to the left, so that it may be caught at arm's length; then throw back, so that the bag may be caught with extended arm on the other side. So continue.

113. *Pendulum, Second*, ACROSS.—Holding the bag in the right hand, swing the arm *out* from the side to above the horizontal, without bending the elbow, and so throw over the head, the bag to be caught in the left hand, arm extended. Let the left arm drop to the side as the bag touches it, and then throw over to the right as before.

114. *Back Throws*, FIRST.—With the bag in both hands, as in Fig. 53, throw it up so that it will fall behind the back, and may be caught there. Then throw it up from behind, so it may be caught in front. So continue.

115. *Back Throws*, SECOND.—Throw the bag with the right hand up and out at the side, catch it in the same hand, and let that hand swing down with the bag until it comes behind the back and throws across so that the catch may be made with the left hand out at the side. Then throw and catch out at the side with the left, then throw behind the back to the right, etc.

116. *Two-bag Exercises, First, POSITION.*—Stand in position with a bag in each hand held just over the shoulder. **RIGHT.** Throw the right bag up by straightening the arm vertically. Do not throw very high at first, but gradually lengthen the distance. In this way you can soon throw to any height you may wish. A, in Fig. 54, illustrates this throw. B shows the position of the hands when at rest.



Fig. 54.

Throw on the odd counts; catch on on the even. Use eight counts for *Right*, the same for *Left*, for *Alternate* and *Both*. When these can be thrown in time and with accuracy, practice the movement *across*. In this both bags are thrown up, but they are so thrown that they pass, and one from the right goes to the left, and the reverse. *Reciprocate* is a still more difficult throw; in this one bag is always going up while the other comes down.

117. *Second, POSITION*—Here the hands hang by the sides, a bag in each hand.

118. *First Movements, RIGHT.*—Throw the bag up and out at the side as in A in Fig. 55; when it is caught let the hand come down at once to the side as in B. Use the change. R., L., Alt., Bo. With sufficient practice the *Reciprocate* and *across* may be taken. In these last the hands should be a little to the front when throwing.



Fig. 55.

119. *Second Movements*, RIGHT.—Throw as before, but in front instead of at the side. Use the same changes.

120. *Front Pendulum*, RIGHT.—With the right hand throw out at the side and catch; then let the hand swing across the body to the left, throw and catch, then back to the right, and continue for the eight counts. Do the same with the *left*. Then throw *both*

first to the right, then to the left for the eight.

121. *Back Pendulum*, RIGHT.—These throws are similar to the front pendulum; but when the hand has thrown out at the side, it then throws behind the body instead of in front. To throw this movement accurately will require patient practice.

122. *Throws in pairs, with one bag, First, Position*.—The class will form in couples facing each other, and about six feet apart. The bag will be held as in Fig. 52, just under the chin.

*Ready, Throw*.—On the first count, each pupil of each couple will throw the bag to the one working with him, and each catch the bag thrown. Each

should throw a little to the right so the bags may not collide. Throw for eight or sixteen counts.

123. *Second, POSITION.*—The bags will be held in both hands back of the head. *Ready, THROW.* The bags will be thrown and caught from this position as from the other.

124. *Third, POSITION.*—Each one of the pair will take the position of Fig. 53. Upon the order as above, throw as directed before.

125. *Fourth, POSITION.*—Stand as directed in the last section, but the pairs will be back to back. The throws from this position are quite difficult and not suitable to be taken at first in the school-room. After a class has drilled upon them on the playground or at home until the work can be done without any reasonable prospect of error, it will then be very good for exhibition.

*Ready, THROW.*—The members of each pair will bend their bodies back until the bag can be seen almost as soon as thrown. Throw and catch as before.

126. *Throws in Sets, POSITION.*—Upon this order the pupils will take the places of the dots A, B, C and D in the accompanying cut, so that the distance from A to B, B to C, C to D, and D to A will in each case be not less than six feet, and as much further as space and accuracy of throwing will permit. Take the position of Fig. 52; at the command *Throw*, A will throw to B, B to C, C to D, and D to A. Each will look the way the bag is coming to

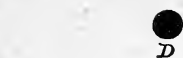


Fig. 56

sufficient degree of accuracy is acquired, let the sets throw until a bag is dropped. When a miss is made each set must start again, as one bag dropped will generally throw the whole set out. When you can throw in one direction without mistake, change and throw the other way. When you wish to make a series, throw one way on the first count, back on the next, and so alternate for the eight counts; then throw continuously one way for the next eight, and the other way for eight more, then change the movement.

127. With the above directions for work in sets with one bag, take all the movements mentioned for throws in pairs.

128. *Throws in pairs with two bags, First, Position.*—Stand about six feet apart, bags in both hands held by the shoulders on top of the hands, Fig. 57.

him, and learn to throw to the right place without looking.

This faculty can be acquired with but little practice, and then the throws can be taken at will. For the first drills the teacher, or some one, would do well to count for each throw. When a

*Ready, RIGHT.*—Throw and catch with the right hand for eight counts. One of each pair must throw upward with a curve, and the other straight across, so that the bags may not collide. R., L., Alt., Both. On this last movement both bags will be thrown and caught at once. Be careful not to throw them so that they will separate as they leave your



Fig. 57.

hands, as it will be almost impossible to catch them.

129. *Second, POSITION.*—Hold the bags between the thumb and forefinger as low as you can behind the shoulders. Throw by an upward vertical curve. R., L., Alt., Bo.

130. *Third, POSITION.*—The arms hanging at the sides, throw by swinging the arms out in

front without bending the elbow. Fig. 58. R., L., Alt., Bo.

131. *Fourth, POSITION.*—The pairs, instead of facing each other, will stand with the right sides turned toward each other, hands hanging at the sides.

132. *First Movements, RIGHT.*—The right hand will throw out at the side and catch. The *left*

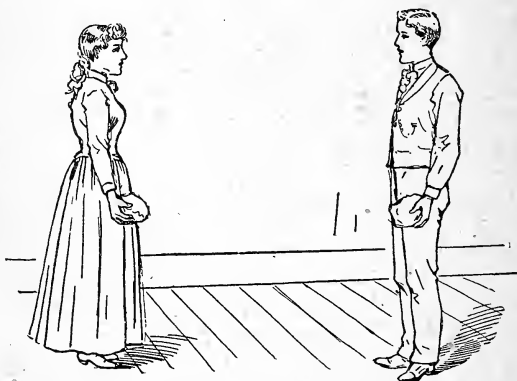


Fig. 58.

hand will throw across in front of the body so that the bag will pass in front of the partner. R., L., Alt., Bo. On this last order, both hands will throw together, the right going out at the side, the left across in front.

133. *Second Movements, RIGHT.*—[These and the next throws are quite difficult, and will require much patient practice on the part of each pair to-

gether before they can be thrown well.] The right hand will be carried across the body to the left and up, describing a half circle, and throwing to the right when the hand is above the head. *Left.* The left hand will swing out from the side and up, describing a half circle, and throwing to the right over the head. R., L., Alt., Bo.

134. *Third Movements, RIGHT.*—These are like the first, except that in throwing the left hand swings across the body behind instead of in front.

135. *Throws in sets with two bags. First, POSITION.*—Stand in sets as in Fig. 56, and hold the bags as in Fig. 57.

136. *First Movements, RIGHT.*—Throw with right hand to the right for eight counts. *Left.* The left hand throws to the left for eight counts. *Alt.* First the right hand throws to the right, then the left to the left. *Both.* Throw both bags for eight counts to the right, then for eight counts to the left.

137. From this last set it may be seen how to throw sets with two bags, and any of the movements can be used. It will be better if in both the throws in pairs and in sets, the same persons practice together generally. They will become used to each other and can throw much better.

## CHAPTER VII.

### LONG WANDS.

138. The long wand exercise is one of the most attractive exhibition drills in the domain of light gymnastic. It will tend more to the cultivation of general ease and grace of motion and flexibility of joint and muscle than any other form of calisthenics. The motions themselves are easy to learn, so that all the attention may be given to the cultivation of grace and exactness of execution. Much room is required, however, so it is not suitable work for the school-room.

The wand is a rod of wood about  $\frac{7}{8}$  of an inch in diameter, and four or five feet long, according to the height. It should reach from the floor to the shoulder when standing up by the side. But a brief exercise can be given here, and we must refer you for more extended series to larger works.



Fig. 59.

139. Having each of the class accommodated with a wand, and so standing that there is no danger that each will knock the other's head, or an other portion of the body, command, *Order WANDS*. The wands will be placed upon the floor behind the toe, and opposite the heel of the right foot, held between the thumb

and forefinger, the top resting against the front of the shoulder. See Fig. 59.

*Carry WANDS.*—Catch the wand with the left hand, opposite the right elbow, and letting it slip through the right hand raise it until the left hand is at the right shoulder. Hold it there, and return the right hand to the side.

*Order WANDS.* — To execute this maneuver from the *carry*, the above order will be reversed. Grasp the wand at the shoulder with the left hand, force it down through the right to the floor, by the heel and behind the toe. Drill at first on the above exercises by counting for the movements. Then let pupils count for themselves. Drill until each motion can be made in unison. When a

rest is wanted, command *Pa-*

*rade*, *Rest*. Leaving the foot of the wand in position, place the hands on top of it and move the right foot back. At the call *Attention*, each will come at once into the position of the order wands.

140. *Arm and Hand Exercise, Position.*—Drop the wand across in front of the body to the horizontal, grasp it with the hands near the ends.

141. *First Movements, Right.*—Swing out at the side, as in Fig. 61, so the wand will be vertical. *R., L., Alt., Bo.*



Fig. 61.



Fig. 60.

142. *Second Movements*, RIGHT.—Holding the left hand as nearly still as possible, swing the right hand over the head till the wand rests against the tip of the left shoulder. Return. R., L., Alt. Fig. 62.

143. *Third Movements*, RIGHT.—Swing the hand over the head to the shoulder, as in Sec. 142. On the second count, drop it back to position of Fig. 63. Return in two counts. R., L., Alt. The alternate, the right hand goes over the head on first and second counts, the left comes back on the third and fourth. Repeat, then the left goes over the head, and the right comes back for the eight counts.



Fig. 62.

144. *Fourth Movements*, RIGHT.—Swing the right hand over the head and into the position of Fig. 63, in one count, return to position or the next, and so continue for the eight. *Left*, throw the left hand over and back. *Alt., first*, the right hand over, the left back. *Alt., second*, the left hand over, the right back. *Both*, keeping the wand horizontal, throw both hands up and over to the position of Fig. 63.



Fig. 63.

145. *First Charges*, RIGHT.—Remembering the cautions given as to charges in Sec. 70, charge forward with the right foot, at the same time swinging the wand to the left side, and thrusting the right hand forward as if to stab some one with it. Recover. R., L., Alt.

146. *Second Charges*, RIGHT.—Step back with the right foot, bending the right knee and keeping the left straight; at the same time throw up the right hand above the head, thus bringing the wand obliquely across the body, as if warding off a thrust. Fig. 64. R., L., Alt.

If the pupils face each other in couples, one taking the work of Sec. 144, the other, of Sec. 145, it gives a very pretty appearance of attack and defense.



Fig. 64.

147. *Third Charges*, RIGHT.—Charge off to the right side, at the same time carrying the wand with the right hand over the head and back to the shoulders described in Sec. 142. R., L., Alt.

148. All the combined exercises given under *short wands* are more easily taken with the longer apparatus. But for the movements from Sec. 72 to Sec. 78, the wands should be made to lap their

whole length. But there is a much more varied series from the position of Fig. 26, Sec. 79. Having taken the position with hands near the ends of the wands, and the body a little between them, command:

149. *First Movements, RIGHT.*—Each will swing the right arm out from the side, and up to a verti-

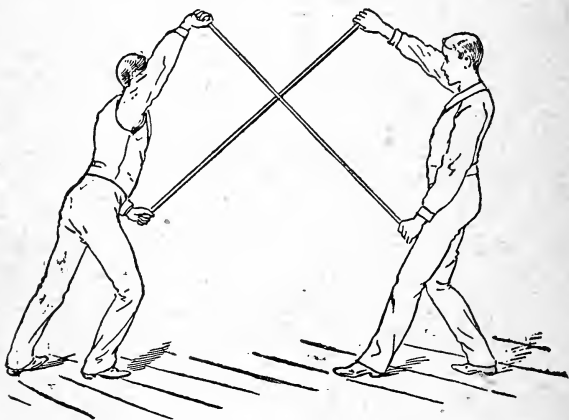


Fig. 65

cal position without bending the elbow, the left hand remaining at the side. This will cross the wands between the couples. R., L., Alt., Bo. On this last, both hands will swing up and back, thus carrying the wands up parallel.

150. *Second Movement, RIGHT.*—For these movements the hands will move as in the last section, but as the right hand swings up each couple

will charge to the teacher's right (or north, south, east or west as may be desired), the one on the side toward which the charge is taken will charge back (Sec. 145), and the other front, thus making the couple move a step in that direction. Back to position on the second count, etc. *Left*, reverse the above. *Alt.*, first one way, then the other. *Both*, swing both wands up, parallel, charging first back (away from each other), then forward (toward each other.) Fig. 65.

151. *Third Movements, RIGHT*.—Charge to the right, carrying the wand up with the right hand over the head. R., L., Alt.

152. Now order, *Second Position, with hands to the north* (south, east or west). *Turn*, swing the hands on the side indicated over the head, the others between the two persons who are working together. This will bring the couple back to back. Now take the movements described in Secs. 148 and 149.

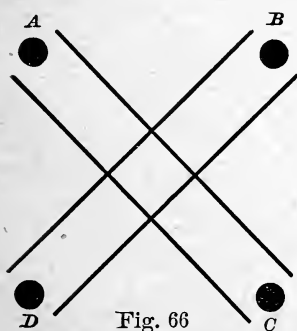


Fig. 66

diagram. A will face C, B will face D.

Then give order *with same hands turn back*; call *Carry wands*, and the class is ready for the next work.

153. *For Movements in sets, PLACES*.—At the order class will arrange in sets of fours standing, as in the accompanying

*Position, ONE.*—On this count, A will drop his wand to C, and C will drop his to A. Two.—D and B will drop their wands to each other, thus bringing the wands crossed as in Fig. 66.

154. *First Movements, RIGHT.*—These movements are the same as described in Sec. 148, but the four wands will cross at a common center, making a very pretty figure. Hold the wands so there is no danger of dropping, but let the arms be flexible so that all may accommodate themselves to the general movement without friction.

155. In these sets may be taken also the movements described in Secs. 148, 149 and 150. The back movements may be taken if the sets have the patience to practice them until they are perfectly prepared. The needed caution is, *don't anyone try to force the movement*, but each so hold the muscles that the wand will swing with the general movement. This will apply also to the movements about to be described. Each one will need to concentrate the mind upon the work, as one mistake will throw the whole set out. *Be careful.*

156. *Pole Exercises, PLACES.*—Pupils will arrange themselves in rows of from four to eight, according to the size of the room. The members of the class should be about eighteen inches apart.

*First, POSITION.*—Drop each wand to the left, at the same time pulling it up so that the right hand will clasp the end of the stick. Each of the class

can then grasp both his own wand and that of the next to his right, with both hands. The hands should be the width of the body apart. They should hold the wands *tight* and side by side. Then by noting the cautions of the preceding section, the movement may be taken just as if the wands formed one stick. Fig. 67 illustrates this position.

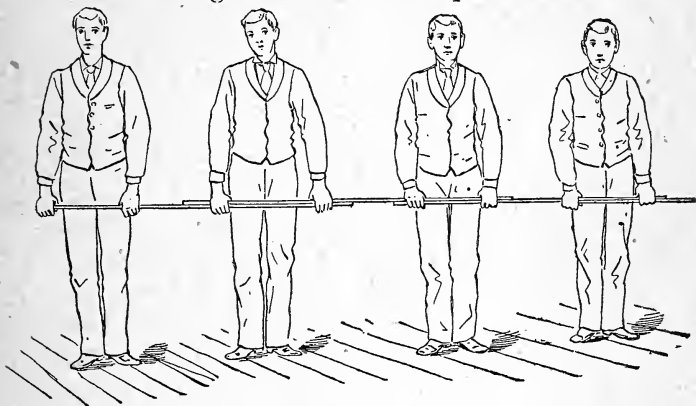


Fig. 67.

157. From this position all the movements suggested in the sections from 74 to 78 may be taken.

158. After bringing the class to carry wands from the last position, order: *For double pole exercises*, CLOSE UP. Pupils will side step toward the middle from both ways, coming within two or three inches of touching elbows. Have the class count off by twos. Command, *twos* FACE. Those of each pair will turn toward each other.

159. *First, POSITION.*—Each will drop his wand to the front, so that his associate and the one behind him may take hold of it. This will enable each, except the end ones, to hold two wands in each hand, and by holding tight will do for a pole in each hand.

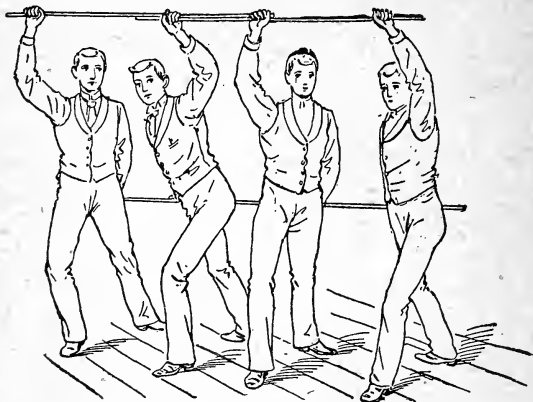


Fig. 68.

160. *First Movements, RIGHT* (This will be the teacher's right, or the right of those facing the teacher).—Swing the pole on this side out from the side up to a vertical position above the head. Don't bend the elbow. R., L., Alt., Bo. *Reciprocate.*—Raise the right over the head. Just as it starts down raise the other; so continue, one pole going up as the other goes down.

161. *Charges, RIGHT.* — Charge toward this

direction, swinging the hand up as in the above article. R., L., Alt. Cut 68.

162. *Second*, POSITION.—Bend the elbows, and place the poles against the side as high under the arms as possible. *First Movements*: Straighten the hands down at the sides. *Second Movements*: Straighten the hands down at the side, and in the same motion swing it up to the horizontal. *Third Movements*: Start as in the others, but swing up over the head. Use R., L., Alt., Bo., with each.

163. *Third*, POSITION.—Place the poles on top the shoulders. The movements are—first, straight up; second, straight up, then out to the horizontal; third, up, and then swing down at the side. Use R., L., Alt., Bo.

164. From the above exercises, the teacher, so disposed, can make an infinite variety of movements that will be attractive and valuable. Remember to cultivate promptness and energy of movement. To be attractive, the motions must be in exact unison.

## CHAPTER VIII.

### CLUBS.

165. The Indian club is *the* popular light gymnastic apparatus. One may work years in mastering the intricacies of the movements, and still have new combinations to attract the attention. But one may by patient effort for a few weeks master the elementary circles and swings, and from a close observation of experts, and practicing upon their combinations, become skillful without the help of a teacher.

The following directions are but for these elements of club swinging. Many excellent works are published upon the subject, and can be had for a small price. The aim of this chapter is to give its readers an inkling of what club swinging is like, with the hope that it may thus be made attractive, and call for more advanced study. Take the book and carefully read the directions for each movement; get it in the mind first, then with club in hand try to execute it. *Master* the single circles before trying the combinations. The one-hand movements must be made nearly automatic before the reciprocate movements can be executed.

When the movements here given have been mastered, every time you see anyone swinging clubs, **fix** some new movement in the mind; go home and

practice it until it is *yours*, then you are ready for something new again. If you are not situated so that you can see work of this kind, buy a book containing advanced movements.



Fig. 69.

166. There are three positions in which the clubs may be held when at rest or starting a movement, or when a marching exercise is taken to vary a class drill.

*Drop clubs*, Fig. 69; *Carry clubs*, Fig. 70, and *Shoulder clubs*, Fig.



Fig. 70.

71. The most satisfactory for beginners, however, is the *carry*, as the clubs are then the most nearly out of the way of the club that is swinging alone.



Fig. 71.

167. The changes from one position to the other form the CLUB MANUAL, and a very pretty drill for a class exercise. Pupils should come to the class with clubs held in the position of the drop. Command, *Carry CLUBS*. Both clubs will be swung out at arm's length in front and pointing up vertically, then drawn to the

sides as in the cut. At the command *Drop CLUBS*, from this position the movement will be reversed. *Shoulder CLUBS* is the same as *carry*, except that the clubs are laid upon the shoulders, elbows drawn down at the sides, clubs pointing up. See cut. When wished, command, *With a circle, Carry clubs* (or shoulder or drop). When the hands are extended in front make a circle by the sides of the arm carrying the tip of the club on in the direction it is going. When the circle is completed, carry the club on to the position indicated by the order.

168. The first work to be undertaken is the simple *pendulum swing*. The right hand first will swing out from the side, elbow unbent, club extended so as to be in line with the arm; carry it to the height of the shoulder, the horizontal, then swing it back across the front of the body to the horizontal at the left. Continue for eight counts, then do the same movement with the left club.

In these swings be careful to keep the arm straight, and don't turn the body; to avoid this last, swing a little in front when the hand crosses the chest. *Both*, carry both hands together right, then back to the left; eight counts. *Back pendulum swing*, like the above, except that when it goes across the body it swings behind.

169. *Simple Circles, Inner, RIGHT*.—Without bending the elbow, swing from the shoulder, club extended, a circle in front of the body in the direc-

tion indicated by the dart A, in Fig. 69; eight times with the right hand; eight with the left; eight both clubs at the same time; eight reciprocate, one club starting when the other is above the head, and continuing with one club going up while the other descends. When swinging *both* be careful not to strike the clubs together. One hand should go in front when the clubs pass below, and the same hand behind when they pass above.

170. *Simple circles outer*, RIGHT.—The clubs will take the opposite direction for this movement, that of the dart B., in Fig. 69, R., L., Bo., Recip.

NOTE.—Those works that provide for the club starting from the position of the *carry*, name these circles the reverse of the method here used. So when you are studying the movements in any work, note the nomenclature before trying to work out the movement.

171. *Simple circles, parallel*, RIGHT.—Swing both clubs around in the same direction, one the inner, the other the outer, Fig. 72. When the clubs reach the height of the shoulder; in swinging to the right, the left hand should pass above, and go ahead until it comes to the hori-



Fig. 72.

zontal, going down on the left; then the right will pass and continue in advance of the other until the horizontal is reached on the other side, etc. Swing four circles to the right, four to the left, then swing for eight counts, changing the direction of the circle at the height of the shoulder on each alternate count.

172. *Top circles, outer, RIGHT.*—Hold the right hand over the head, as in the Fig. 73, and make a circle behind the shoulder by swinging the tip of the club in the direction of the dart A. As the club descends, bend the elbow so that the club may go as low as possible; it comes up behind the head, and the arm should be straightened up as far as possible, thus making as large a circle as may be. R., L., Bo. In swinging *both*, practice until you can pass the clubs without striking them.

173. *Top circles, inner, RIGHT.*

—These are just the reverse of the *outer*. The tip of the club starts in the direction of B. in the cut, goes down behind the head, to the right behind the shoulder, rises out at the right. When the club comes down bring it as low as possible. When it goes up, straighten the arm so that



Fig. 73.

the club will go as high as it can. *Hold the mouth, head and body still.*

174. *Double inner circles*, RIGHT.—With the right hand describe two *simple inner circles*, Sec. 169, then two *outer top circles*, Sec. 172, and so continue for sixteen counts. Same with the left, then both together. In changing from the top to front circles, make no pause; the movement should be continuous and smooth.

175. *Double outer circles*, RIGHT.—Two *simple outer circles*, Sec. 170, and two *inner top circles*. When the hand has completed the top circles in these movements, it should swing down in front of the face each time, and then carry on the large circles. R., L., Bo.

176. *Parallel top circles*, RIGHT.—Holding both clubs straight up over the head, drop them both over to the right, making the inner circle with one club, and the outer with the other, thus revolving the two in the same direction. Be careful that they do not come in contact with each other or your head. R., L.

177. *Inner circles*, RIGHT.—A simple inner circle in front and an outer top circle form what is called simply the *inner circle*. Make it as smooth as possible, and each of the circles composing it as large as you can. Use R., L., Bo. Then you are ready for the *Reciprocate* movement. This combination is the only special difficulty in club swing-

ing. Conquer it, and you have mastered the difficulties of the art. For swinging the movements of this number you count for each circle, the odd counts for the front and even for the top circles. When you come to the *reciprocate*, you start the right hand on the first count, and just as it starts to make the top circle, swing in the other hand. This, you see, will let one hand make the top circle, each time when the other hand is making the front, and one hand going up while other is coming down, Fig. 73, A. and D. Should you wish to start both hands at once, hold the right over the head, then on first count it will make the outer top, while the left will make the inner front.

When you can do the reciprocate easily, practice changing from *Both* to the *Reciprocate*. This is done by putting in two top circles with the right or left hand on the last counts of Bo. This will throw the right hand one count behind the left, and that gives the reciprocate. Change back in the same way, by putting in either an extra front or top circle.

178. *Outer Circles*, RIGHT.—A simple outer circle and an inner top circle. R., L., Bo. Reciprocate. Start the right on the first count, and the left on the second as directed above.

179. *Parallel Movements*, RIGHT.—Swing the clubs parallel as directed before, both describing first a parallel simple circle in front, then a parallel top circle; or perhaps it may be better understood to

say that one club makes an inner circle and the other an outer, both to the right. Be sure both clubs make good circles behind the head. The WIND MILL may be made from this movement by simply starting one hand half a count ahead of the other. This a very pretty movement, and can be easily done.

180. *Side Circles*, RIGHT.—The right hand will swing back from the side in a semi-circle up to the vertical, then throw the tip of the club forward, bend the elbow, and make a circle *by the side* of the shoulder; raise the club, throw it forward at arm's length, swing clear around at the side to the vertical again, make the small circle at the shoulder, and so continue for the eight counts. R., L., Bo., Recip.

181. *Pendulum Movements*, RIGHT.—The right hand will swing out from the side to the horizontal, and stop with the club extended, then holding the hand and arm as still as you can (you must move and bend them *some*), make a circle with the club back of the arm and as close to it as possible. As the club comes down after making the circle, let it swing across to the horizontal on the other side, stop and make a circle in front of the arm, the club starting down after the pause. Do the same with the left, but swing it across the body to the right first instead of out from the side. *Both*, swing both clubs to the right first, make a circle, then swing to the left, etc.

182. *Triple Movements*, RIGHT.—Start both clubs as if about to swing the parallel movements to the right, but when they are horizontal, stop the arms and with a wrist movement carry the tips of the clubs up and make a circle by the sides of the arms. When they have completed this small circle, A, Fig. 74, carry them up to the vertical, make

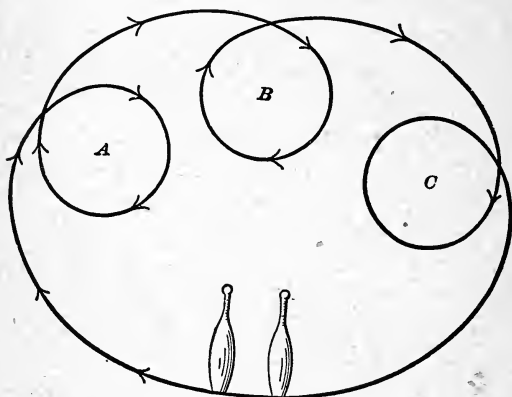


Fig. 74

a circle behind the head, B; swing on to the horizontal on the left, make the circle C, and continue sixteen counts.

183. The above are simply the elements; combine, modify and enlarge as you choose, and you can make of these simple movements a series that will do you credit.

## CHAPTER IX.

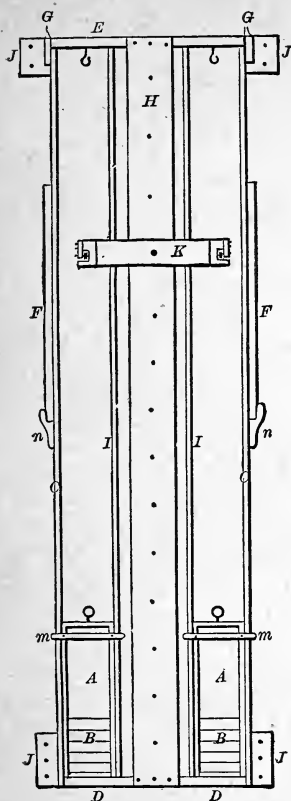
### THE HOME AND SCHOOL GYMNASIUM.

One of the chief reasons that people do not exercise more regularly, is that they have not convenient apparatus, and cannot afford the time. For such persons and for convenience of health exercises, the following apparatus is suggested and illustrated by the accompanying cut and working drawings. Any ingenious boy can make it at a cost of \$2.

As will be seen, it is arranged so that the most valuable horizontal bar work, the pull-up, what the boys call "chinning up," may be taken from the upper bars, G. The most useful exercise on the parallel bars, the dip (see Sec. 10), may be taken on the side slats, F. These may then be turned up by the side pieces of the machine, and be entirely out of the way for the exercises with the pulley weights. This pulley-weight work is the most valuable part of the apparatus, and for the one who is working for health and physical development, it is by far the best exercise that can be taken.

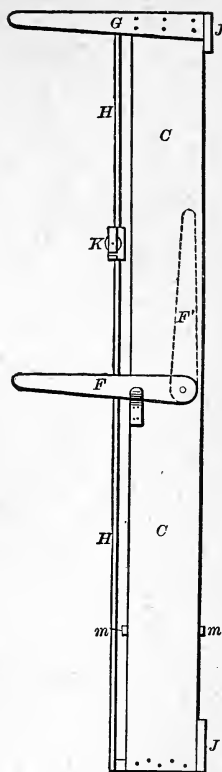
The apparatus consists of two boxes, A A, just large enough to admit bricks running from front to back. The sides of these boxes should be made of as thin stuff as possible, so that they may take up but little room. The opening should be eight





Front Projection.

Fig. 76



Side Projection.

Fig. 77

bricks. In the middle of the top should be an ordinary screw pulley.

These boxes slide up and down between the two eight-inch upright boards: C and I on each side. C C should be as long as the whole machine is wanted—eight feet for tall men, six and one-half or seven for children and women. It should be so high that one holding the bars, G, will not touch the floor with the toes. The side pieces, C, should be nailed to pieces of two-inch plank, D and E, at each end. These pieces should be two feet long and ten inches wide. They would then project two inches in front of C and I, both above and below. The boards I should be four inches shorter than C C, so they will just fit between E and D, where the side pieces are nailed in place. The space between C and I should just permit the boxes A to slide up and down between them. To E and D, in front, is nailed the six-inch board H. Inch holes, 6 inches apart, should be bored upon the middle line of this throughout its length. Across the back of the whole, at top and bottom, should be nailed the boards J. They should project from the sides so that the apparatus may be securely screwed to the wall. Moving up and down on the board H, is the slide pulley board K. This is more fully illustrated in Fig. 78. Take two one-inch boards, four inches wide and twelve inches long. Saw, three inches from either end, half through each board. Chisel out the block, so that when the two are put together, the opening X, in Fig. 78, will just fit around the

board H. Now take two more pieces of inch board, three inches long and four inches wide. Saw each into the shape of Y in Fig. 78. Make a grooved wheel, R (a spool will do if you can find or make nothing better). Fasten this as in the figure by means of a slat nailed to the end of Y, and a wire nail as an axis for the wheel. Leave an opening Z, so that a cord may be inserted. Chisel out a groove in the board that is to be in front, and screw into it

### The Slide Pulleys.

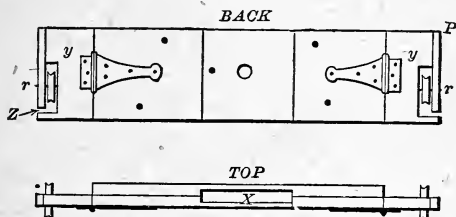


Fig. 78

the hinges shown in the figure. Then screw in place the blocks containing the pulleys. Now place the two boards with the grooved X coinciding, screw them together and bore an inch hole in the middle, so it will conform to the holes in H, when in place. Separate the boards, put them in place on H, see that when they slide up and down, the hole in the slide will coincide with those in H, and that the blocks Y will swing to the back and not

front, then screw the two securely together. Make a pin to hold the slide at different heights by being put in the holes. A screw hook should be in the back of the board E in each of the spaces between C and I, and a pulley that will turn or swing in the front part of each space. Attach a cord to the screw hook; thence let it pass through the pulley in the top of the box that carries the weights; from there over the pulley in the top piece, and down to those in the slide when that is to be used. To the end of each cord should be fastened a stirrup handle, as shown in Fig. 75. These may be made of a piece



Fig. 79

from one end to the other, as in Fig. 79. The slats G are simply screwed to the sides of the pulley-weight apparatus. They should project about fourteen inches in front. The side slats should be about four feet from the floor, secured to the side pieces with bolts, and supported by the cleats N. If these slats are not desired, the whole machine may be made of soft wood; but if they are wanted, the slats and boards C, should be hard wood, or the slats themselves should be braced.

The following directions will give movements that, if taken regularly, with not too heavy weights, will insure a systematic development, and make our apparatus what it claims to be—a complete home and school gymnasium.

A.—Take the cords out of the slide pulley and fasten the handles close to the top pulleys. Stand with the back against H, hands straight over the head. Without bending the elbows, bring the arms down and out at the side until they touch the sides of the hips. Repeat.

B.—Without bending the elbows, bring the hands right down to the front from the same position.

These two exercises are especially fine for expanding the chest.

C.—When any one cannot “chin up,” stand with the face to the machine, catch the handles as high as can be reached, and pull to the shoulders as often as may be. This is the same as the pull-up, and if one practices it regularly he will soon be able to do the other.

D.—Place the slide pulley at the height of the shoulders; with a handle in each hand stand at arm's length from the machine (the cords should be shortened so that the handles come to the pulley each time); with the backs of the hands up, and without bending the elbows, bring the hands down to the sides. Repeat.

E.—Standing in the same position, turn the backs of the hands out and swing both arms horizontally back as far as possible.

F.—Standing in the same position, turn the backs of the hands up and swing the hands as high as possible over the head.

G.—Stand with the back to the machine; bring the handles to the front until they touch, then let them go back as far as possible horizontally and bring to front again.

H.—Place the slide close to the floor, take hold of the handles and raise them as high as you can over your head in front.

I.—With the same position raise out at the side as high over the head as convenient.

The above will suffice to show *some* of the work that can be done with this apparatus. By combining the different movements given, by standing with the side to the machine, bending the body in various ways, the whole body may be exercised.



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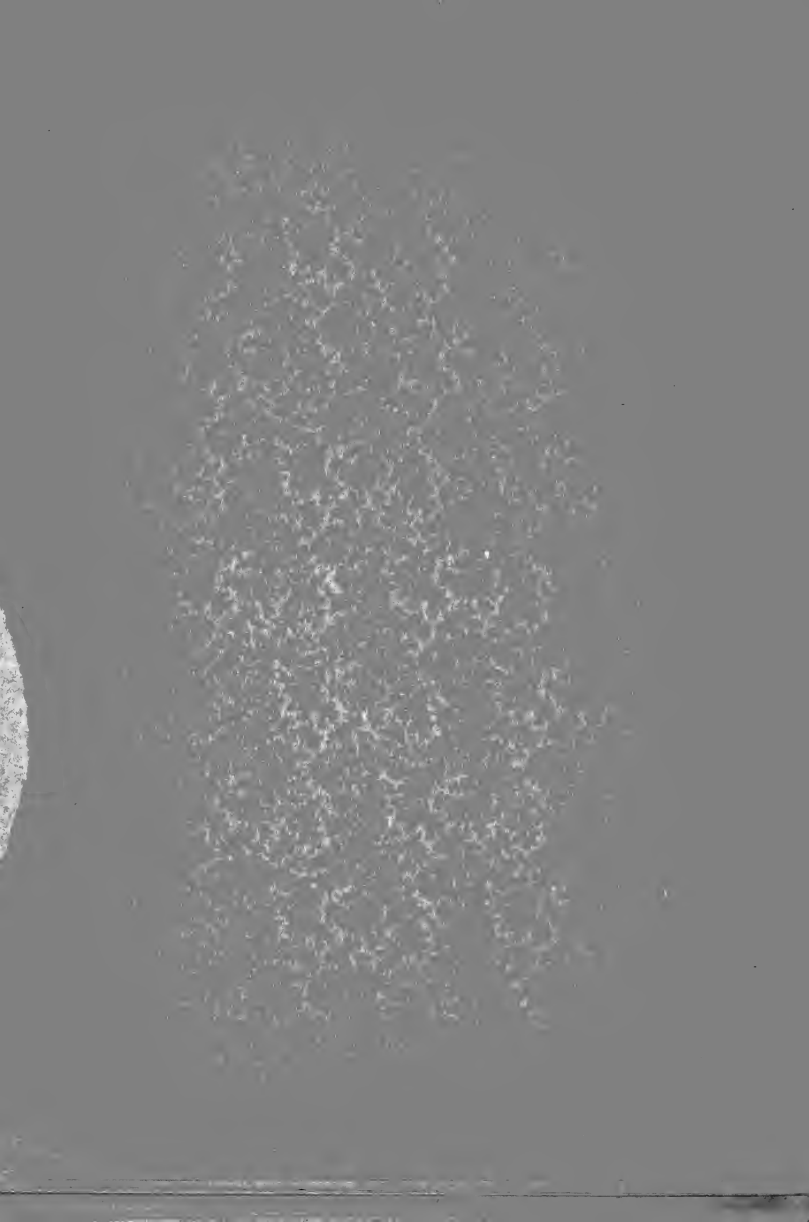
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